

# Service Manual

## Radio RF-080/©

### FM/AM 2 BAND PORTABLE RADIO



#### ■ SPECIFICATIONS

Frequency Range:	FM 88~108 MHz AM 525~1610 kHz
Intermediate Frequency:	FM 10.7 MHz AM 455 kHz
Sensitivity:	FM 2 $\mu$ V/S/N 6 dB AM 8 $\mu$ V/m for 50 mW Output
Batteries:	4.5 V (Three "AA" Size Penlight Batteries) (Panasonic UM-4 or equivalent)
Speaker:	5 cm (2") PM Dynamic Speaker
Dimensions:	2 $\frac{3}{32}$ " (Wide) $\times$ 4 $\frac{23}{32}$ " (High) $\times$ 2 $\frac{3}{32}$ " (Deep) (58 $\times$ 120 $\times$ 23) mm
Weight:	6 oz (170 g) with batteries
Impedance:	Speaker ..... 8 $\Omega$ Earphone Jack ..... 8 $\Omega$

Specifications are subject to change without notice.

Weights and dimensions shown are approximate.

(Les poids et dimensions mentionnés sont approximatifs.)

# Panasonic®

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DISASSEMBLY INSTRUCTIONS

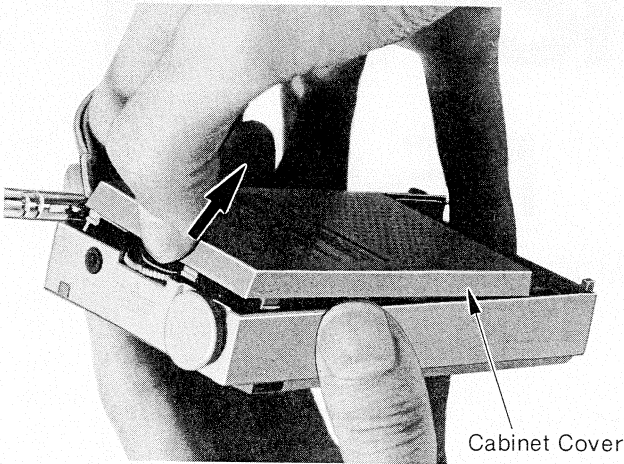


Fig. 1

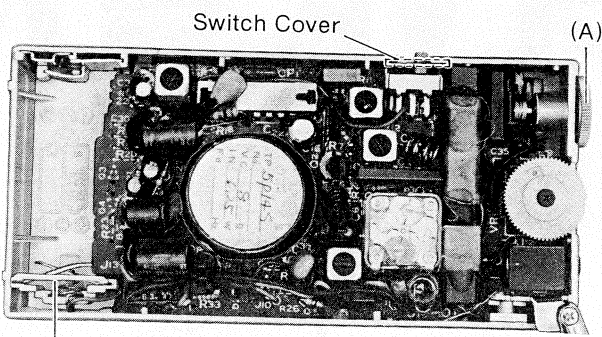


Fig. 2

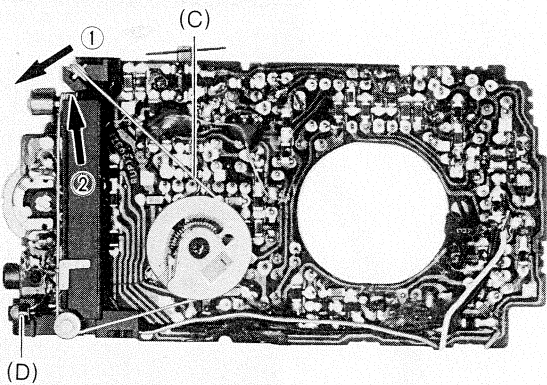


Fig. 4

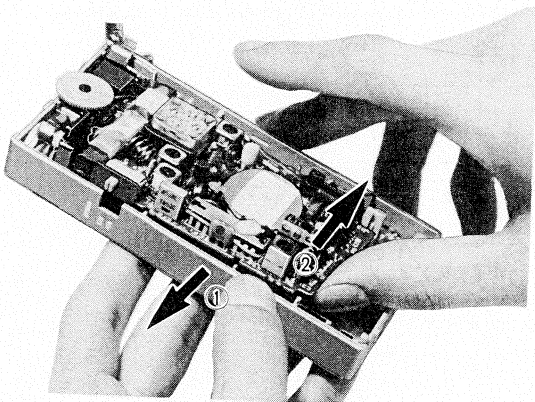


Fig. 3

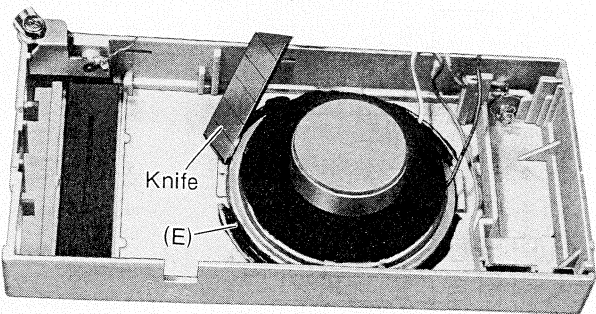


Fig. 5

DIAL THREADING

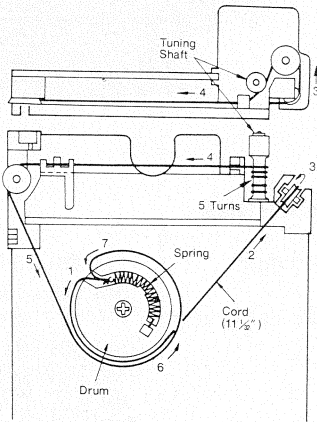


Fig. 6

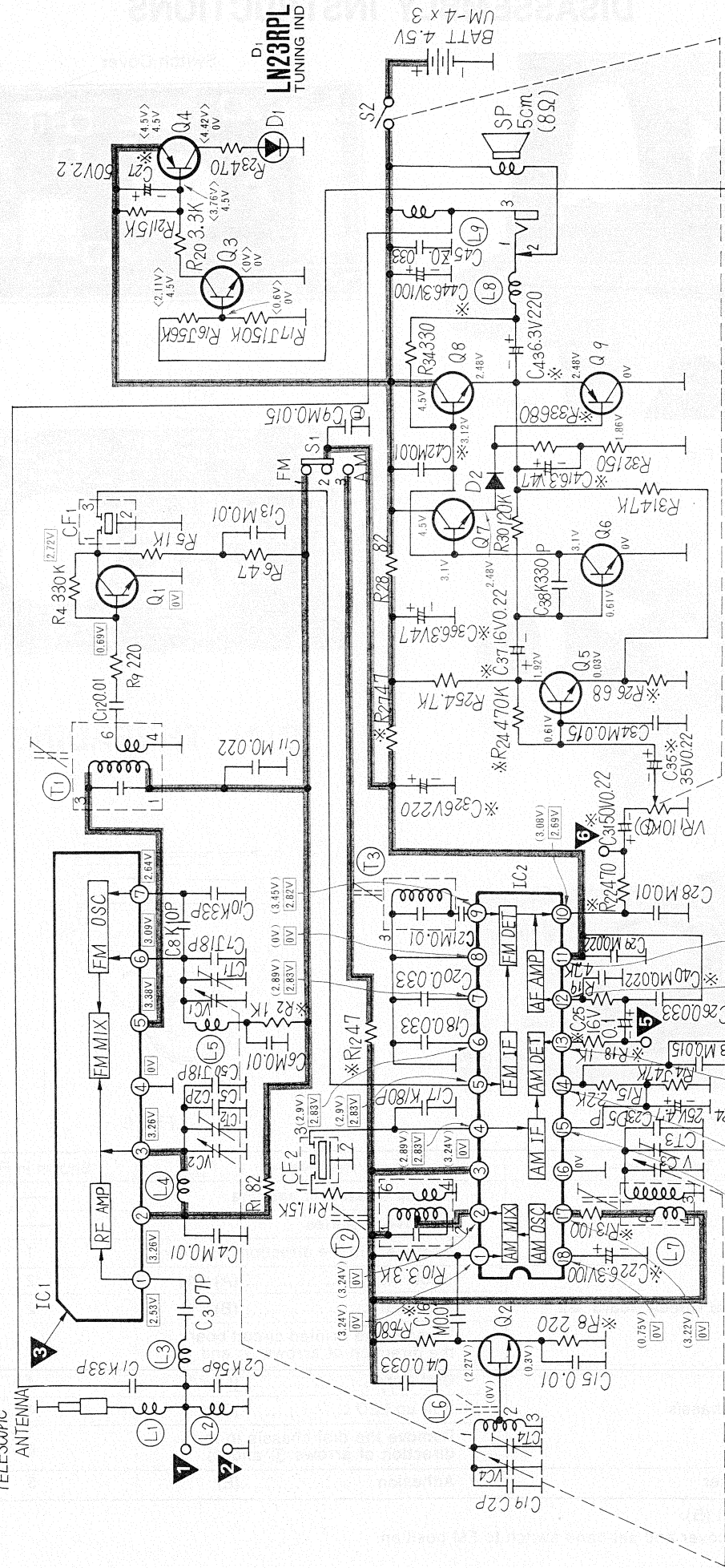
Procedure	To remove—.	Remove—.	Shown in Fig—.
1	Rear Cabinet ※1	Pull up telescopic antenna	—
2		Remove batteries	—
3		Remove it in the direction of arrow	1
4	Printed Circuit Board ※2	Knob .....(A) × 1	2
5		Terminal .....(B) × 1	2
6		Remove the printed circuit board in the direction of arrows ① and ②.	3
7	Dial chassis	Dial Cord .....(C) × 1	4
8		Pull up LED .....(D) × 1	4
9		Remove the dial chassis in the direction of arrows ① and ②.	4
10	Speaker	Adhesion .....(E)	5

※1. Insert the terminal (B).  
※2. Insert the switch cover and set band switch to FM position.

AM	3.08V	3.46V	2.72V	2.33V	0.31V	0.30V	0V	3.22V	0.75V
FM	2.69V	3.38V	2.64V	2.33V	0.45V	0.42V	0V	0V	0V



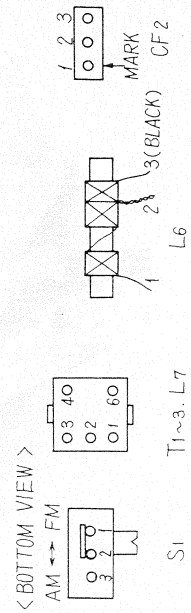
Q<sub>2</sub> 2SK104 AM RF AMP IC<sub>1</sub> AN7220A FM/AM IF & DET IC<sub>2</sub> AN7213 FM RF & MIX Q<sub>3</sub> 2SD601 2SD601 2SC2295 2SD601 MA27B2 2SC1788 2SA1128 2SD601 2SB709 DC AMP LED DRIVER



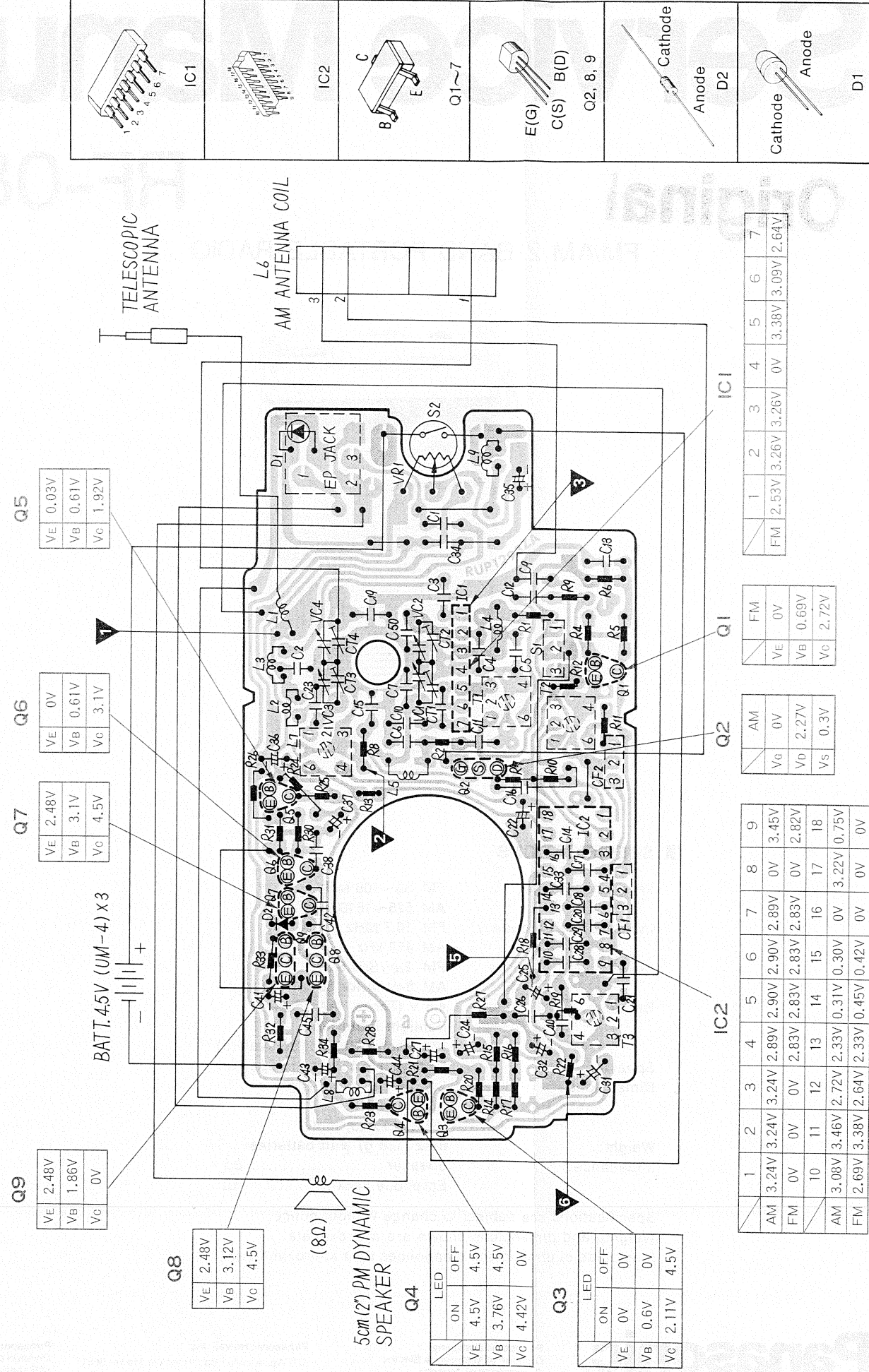
Notes:

1. S1: Band switch in "FM" position.
2. S2: Power switch in "OFF" position.
3. DC voltage measurements are taken with electronics voltmeter based on negative terminal of battery.  
□ ...FM position ( ) ...AM position  
( ) ...LED ON position

4. Battery Current: No Signal .....22.5mA  
Maximum output .....130mA
5. Using chip resistor and capacitor except \* mark.
6. VR1... Volume control.
7. The mark (▼) shows test point. e.g. ▼= Test point 1.



CIRCUIT BOARD WIRING VIEW MODEL RF-080/©



Q9	VE	2.48V
	VB	1.86V
	VC	0V

Q6	VE	0V
	VB	0.61V
	VC	3.1V

Q5	VE	0.03V
	VB	0.61V
	VC	1.92V

Q7	VE	2.48V
	VB	3.1V
	VC	4.5V

Q8	VE	2.48V
	VB	3.12V
	VC	4.5V

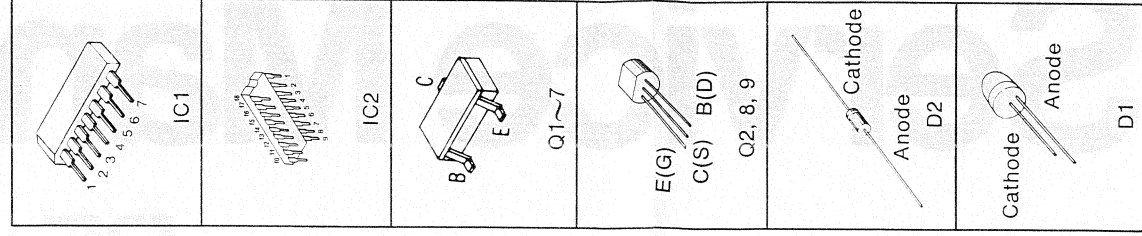
Q4	LED	ON	OFF
	VE	4.5V	4.5V
	VB	3.76V	4.5V
	VC	4.42V	0V

Q3	LED	ON	OFF
	VE	0V	0V
	VB	0.6V	0V
	VC	2.11V	4.5V

Q1	AM	FM
	VE	0V
	VB	0.69V
	VC	2.72V

Q2	AM	FM
	VE	0V
	VB	2.27V
	VS	0.3V

Q1	1	2	3	4	5	6	7
FM	2.53V	3.26V	3.26V	0V	3.38V	3.09V	2.64V





## ALIGNMNT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

**Notes:**

1. Set volume control to maximum.
2. Set band selector switch to AM or FM.
3. Set power source voltage to 4.5 volts DC.
4. Signal generator output should be set no higher than necessary to obtain an output reading, to prevent overlooking.

SIGNAL GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS	
CONNECTIONS	FREQUENCY					
AM-IF ALIGNMENT						
(1)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. with 400 Hz.	Point of non- interference. (on/about 600 kHz)	Output meter across voice coil.	T <sub>2</sub> (1st IFT)	Adjust for maximum output.
AM-RF ALIGNMENT						
(2)	“	511 kHz	Tuning capacitor fully closed.	“	L <sub>7</sub> (OSC Coil)	“
(3)	“	550 kHz	Tune to signal.	“	( * 1)L <sub>6</sub> (ANT Coil)	Adjust for maximum output. Adjust L <sub>6</sub> by moving coil bobbin along ferrite core.
(4)	“	1500 kHz	Tune to signal.	“	CT <sub>4</sub> (ANT Trimmer)	Adjust for maximum output.
(5)	“	1650 kHz	Tuning capacitor fully open.	“	CT <sub>3</sub> (OSC Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
( * 1) Cement antenna bobbin in place with wax after completing alignment.						
FM-IF ALIGNMENT						
(6)	High side thru. 0.001μF to point ▼. Negative side to point ▼.	10.7 MHz (400 kHz SWP.)	Point of non- interference. (on/about 90 MHz).	Connect vert. amp. of scope to point ▼, Negative side to point ▼.	T <sub>1</sub> (1st IFT)	Adjust for maximum amplitude. (Refer to fig. 7).
(7)	“	“	“	“	T <sub>3</sub> (2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 8).
FM-RF ALIGNMENT						
(8)	Connect point ▼ through FM dummy antenna. Negative side to Point ▼. (Refer to fig. 9.)	87.5 MHz	Tuning capacitor fully closed.	Output meter across voice coil.	L <sub>5</sub> (OSC Coil)	( * 2) Adjust for maxi- mum output.
(9)	“	90 MHz	Tune to signal.	“	L <sub>4</sub> (Tuning Coil)	“
(10)	“	106 MHz	Tune to signal.	“	CT <sub>2</sub> (Tuning Trimmer)	“
(11)	“	108 MHz	Tune to signal.	“	CT <sub>1</sub> (OSC Trimmer)	( * 2) Adjust for maxi- mum output. Repeat steps (8)~(11).
( * 2) Three output responses will be present; proper tuning is the center frequency.						

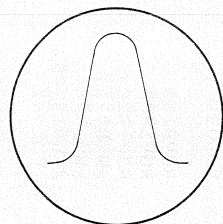


Fig. 7

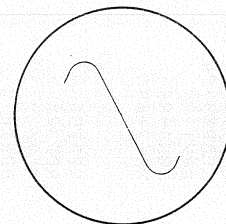


Fig. 8

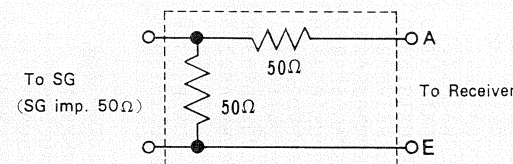


Fig. 9 FM Dummy Antenna

## ALIGNMENT POINTS

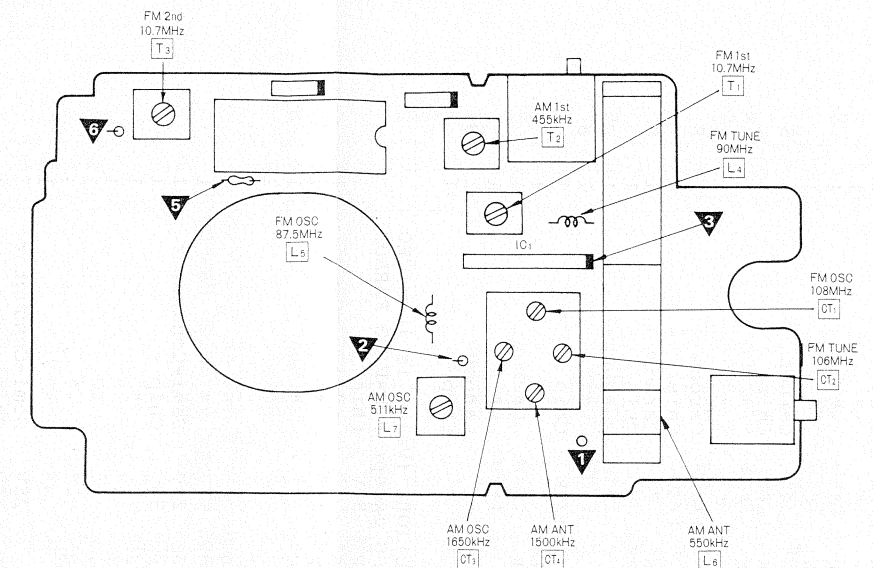


Fig. 10

## CABINET PARTS

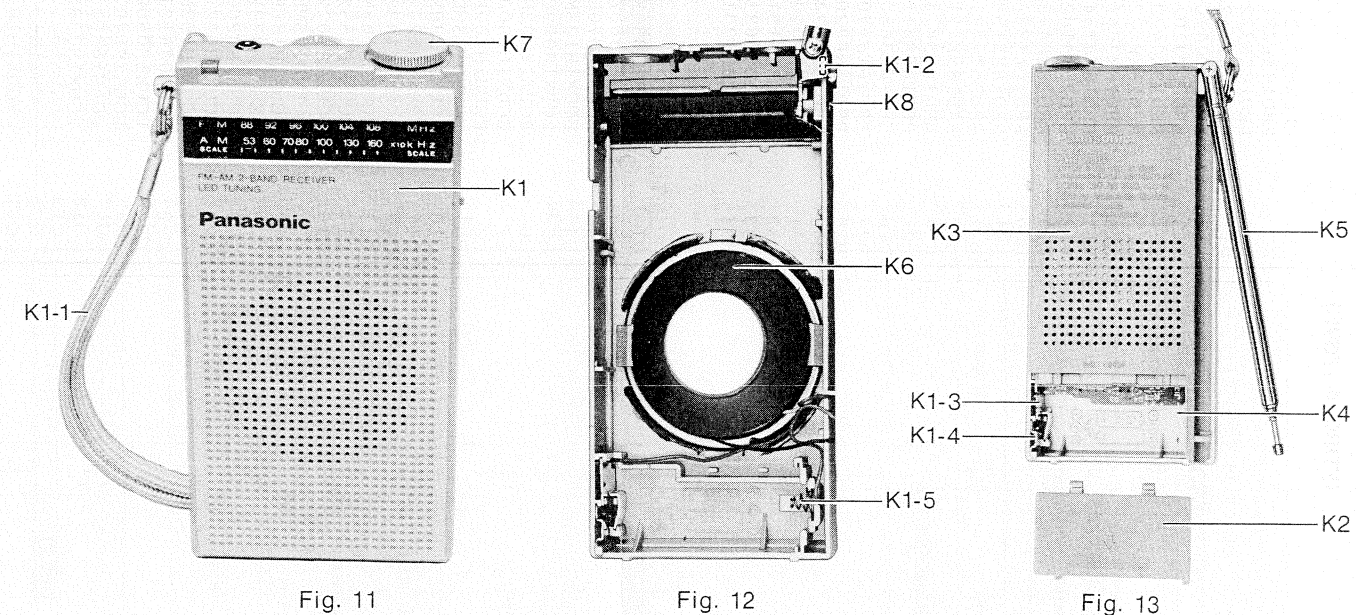


Fig. 11

Fig. 12

Fig. 13

## ELECTRICAL PARTS

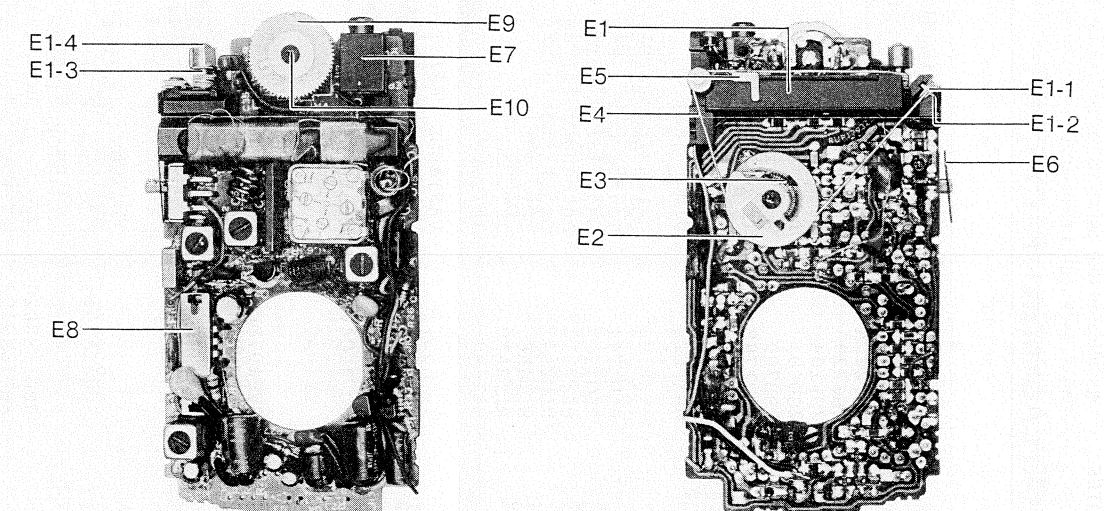


Fig. 14

Fig. 15



REPLACEMENT PARTS LIST.....Model RF-080/®  
(RD8004-1769C)

NOTES: 1. Δ Indicates that only parts specified by the manufacturer be used for safety.  
2. The S mark indicates service standard parts and may differ from production parts.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
INTEGRATED CIRCUITS, TRANSISTORS AND DIODES				
IC1	AN7213	IC	1	
IC2	AN7220A	IC	1	
Q1	2SC2295	Transistor (Si)	1	
Q2	2SK104	Transistor (Si)	1	
Q3, 5~7	2SD601	Transistor (Si)	4	
Q4	2SB709	Transistor (Ge)	1	
Q8	2SC1788	Transistor (Si)	1	
Q9	2SA1128	Transistor (Ge)	1	
D1	LN23RPL	LED (Ga)	1	
D2	MA27B2	Diode (Si)	1	S
COILS AND TRANSFORMERS				
L4	RLD4Y44	Tuning coil, FM	1	
L5	RLQ4Y19	Oscillator coil, FM	1	
L6	RLF2Y12	Antenna coil, AM	1	
L7	RLQ2A4	Oscillator coil, AM	1	
T1	RLI4A8	IFT, FM	1	
T2	RLI2A10	IFT, AM	1	
T3	RLI4A9	IFT, FM	1	
VARIABLE RESISTOR				
VR1	EVLEABT12D14	Variable Resistor, 10kΩ (D)	1	
VARIABLE CAPACITOR				
VCL~4	RCV4LC4VN	Tuning Capacitor W/Trimmer Capacitor CTL~4	1	
CERAMIC FILTERS				
CF1	RVF107MFZ	Ceramic Filter	1	
CF2	RVFCFM2455B	Ceramic Filter	1	
SPEAKER				
SP	EAS5P14S	Speaker, 5cm (2"), 8Ω	1	
SWITCH				
S1	RSS2A25Y	Switch, Band	1	
RESISTORS (Value is in OHMS)				
R1	RRD18XK820	82 1/8W Chip	1	
R2	RRD18XK102	1 K "	1	
R4	RRD18XK334	330 K "	1	
R5	RRD18XK102	1 K "	1	
R6	RRD18XK470	47 "	1	
R7	RRD18XK681	680 "	1	

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RF-080/C

RF-080/C

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C27	ECEALHK2R2	2.2 50V	1	
C28	ECUX1H153MD	" Chip	1	
C29	ECUX1H223MD	" "	1	
C31	ECEALHKR22	0.022 " Electrolytic	1	
C32	ECEALAS221	220 10V "	1	
C33	ECUX1H153MD	0.015 50V Chip	1	
C34	ECUX1H153MD	0.015 " Electrolytic	1	
C35	ECSF1VM224	0.22 35V Electrolytic	1	
C36	ECEAOJK470	47 6.3V "	1	
C37	ECAG16ER22	0.22 16V "	1	
C38	ECUX1H331KD	330 P 50V Chip	1	
C40	ECFVD223MD	0.022 25V Semi-Conductor	1	
C41	ECEALAS470	47 10V Electrolytic	1	
C42	ECUX1H103MD	0.01 50V Chip	1	
C43	ECEALAS221	220 10V Electrolytic	1	
C44	ECEAOJK101	100 6.3V "	1	
C45	ECUX1H333ZF	0.033 50V Chip	1	
C50	ECUX1H180JC	18 P 50V "	1	
CABINET PARTS				
K1	RYMFO80M8	Front Cabinet Assembly	1	
K1-1	RKH9627	Hand Strap	1	
K1-2	XUC2FT	Circulip, Hand Strap	1	
K1-3	RJC933Z	Terminal, Battery +, - Side	1	
K1-4	RJC934Z	Terminal, Battery + Side	1	
K1-5	RJC911Z	Spring, Battery - Side	1	
K2	RYNF566N7	Battery Cover Assembly	1	
K3	RKF515Y7	Rear Cabinet	1	
K4	RJC910Z	Terminal, Battery +, - Side	1	
K5	XEARK93FAY	Telescopic Antenna	1	
K6	RMX178Z	Insulating Sheet	1	
K7	RBN498Z	Knob, Tuning	1	
K8	XSN2+6BN	Screw, Telescopic Antenna M'tg	1	
ELECTRICAL PARTS				
E1	RZAF566N	Dial Chassis Assembly	1	
E1-1	RDR32Z	Pulley, Dial	1	
E1-2	RDY45Z	Shaft, Pulley	1	
E1-3	RDX187Z	Shaft, Tuning	1	
E1-4	XUC12FT	Circulip, Tuning Shaft	1	
E2	RDD182Z	Drum, Dial	1	
E3	RDS2052X	Spring, Dial	1	
E4	RDZ03Y	Cord, Dial	1	
E5	RDP810Z	Pointer, Dial	1	
E6	RVV580Z	Cover, Band Switch	1	
E7	RJJC12	Jack, Earphone	1	
E8	RMG607Z	Shield Cover, IC	1	
E9	RBT132Z	Knob, Volume	1	
E10	XSHR17+2FZ	Screw, Drum & Knob M'tg	2	
ACCESSORY				
A1	XEHLA2-D	Magnetic Earphone	1	S

RD® M/MC  
Printed in Japan

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R8	ERD25TJ221	220 1/4W Carbon	1	S
R9	RRD18XK221	220 1/8W Chip	1	
R10	RRD18XK332	3.3 K "	1	
R11	RRD18XK152	1.5 K "	1	S
R12	ERD25TJ470	47 1/4W Carbon	1	S
R13	ERD25TJ101	100 " "	1	
R14	RRD18XJ473	47 K 1/8W Chip	1	
R15	RRD18XK222	2.2 K "	1	
R16	RRD18XJ563	56 K "	1	
R17	RRD18XJ154	150 K "	1	S
R18	ERD25TJ102	1 K 1/4W Carbon	1	
R19	RRD18XK472	4.7 K 1/8W Chip	1	
R20	RRD18XK332	3.3 K "	1	
R21	RRD18XK153	15 K "	1	
R22	ERD25TJ471	470 1/4W Carbon	1	S
R23	RRD18XK471	470 1/8W Chip	1	S
R24	ERD10TJ474	470 K "	1	
R25	RRD18XK472	4.7 K "	1	S
R26	ERD10TJ680	68 " "	1	S
R27	ERD10TJ470	47 " "	1	S
R28	RRD18XK820	82 1/8W Chip	1	
R30	RRD18XK124	120 K "	1	
R31	RRD18XK473	47 K "	1	
R32	RRD18XK151	150 " "	1	
R33	ERD10TJ681	680 " "	1	S
R34	RRD18XK331	330 " "	1	
CAPACITORS (Value is in MICRO FARADS except P.P.=PICO FARADS)				
C1	ECUX1H330KC	33 P 50V Chip	1	
C2	ECUX1H560KC	56 P "	1	
C3	ECUX1H070DC	7 P "	1	
C4	ECUX1H103MD	0.01 " "	1	
C5	ECUX1H020CC	2 P "	1	
C6	ECUX1H102MD	0.001 " "	1	
C7	ECUX1H180JC	18 P "	1	
C8	ECUX1H100KC	10 P "	1	
C9	ECFVD153MD	0.015 25V Semi-Conductor	1	
C10	ECUX1H330KC	33 P 50V Chip	1	
C11	ECUX1H223ZF	0.022 " "	1	
C12	ECUX1H103ZF	0.01 " "	1	
C13	ECUX1H103MD	0.01 " "	1	
C14	ECUX1H333ZF	0.033 " "	1	
C15	ECUX1H103ZF	0.01 " "	1	
C16	ECFVD103MD	0.01 25V Semi-Conductor	1	
C17	ECUX1H181KD	180 P 50V Chip	1	
C18	ECUX1H333ZF	0.033 " "	1	
C19	ECUX1H020CC	2 P "	1	
C20	ECUX1H333ZF	0.033 " "	1	
C21	ECUX1H103MD	0.01 " "	1	
C22	ECEAOJK101	100 6.3V Electrolytic	1	
C23	ECUX1H050DC	5 P 50V Chip	1	
C24	ECEALEK4R7	4.7 25V Electrolytic	1	
C25	ECAG16ER1	0.1 16V Electrolytic	1	
C26	ECUX1H333ZF	0.033 50V Chip	1	
PACKING MATERIALS				
P1	XZBL0X20A04	Polyethylene Cover	1	S
P2	RPH357Z	Soft Sheet	1	
P3	RPN3178Z	Pad	1	
P4	RPK959Z	Gift Box, USA Only	1	
P4	RPK959Y	Gift Box, Canada Only	1	
PRINTED MATERIALS				
Y1	RQX6570Z	Instruction Book, USA Only	1	
Y1	RQX6594Z	Instruction Book, Canada Only	1	

PACKING MATERIALS

